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(54) Ear plugs.

(57) A pair of ear plugs (10,10) attached to the opposite ends of a length of cord (12).

So that the plugs can be detected by metal detectors if they become misplaced, each plug (10) is connected to the end of the cord (12) by a metal ferrule (14), the ferrule being crimped on the end of the cord and being a force fit in the hole in the plug.

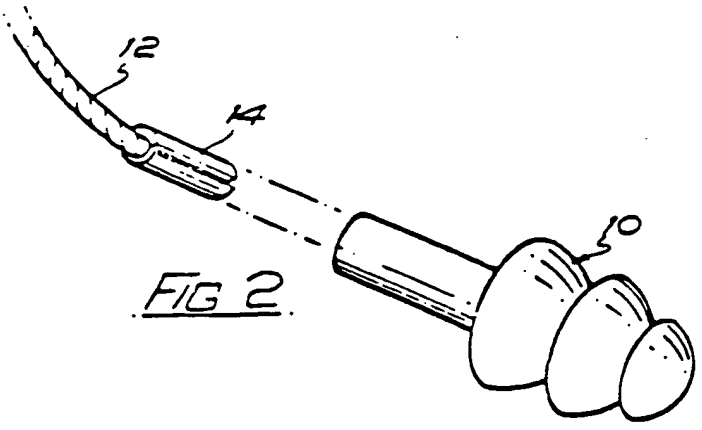

FIG 2

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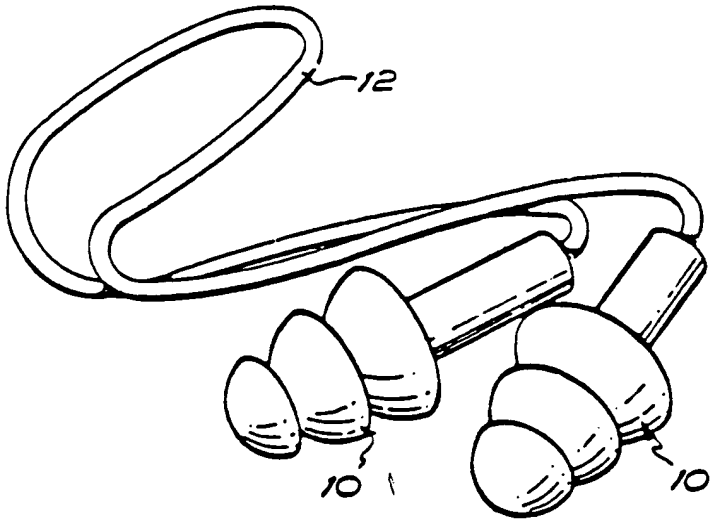

FIG 1

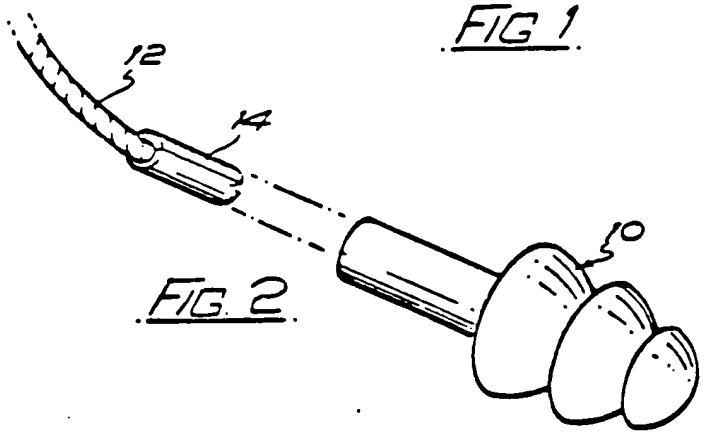

FIG 2

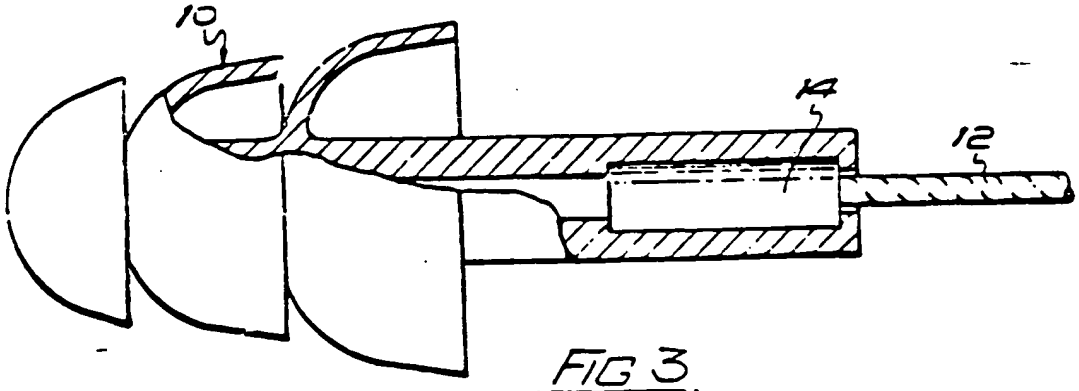

FIG 3

Ear plugs.

The invention relates to ear plugs and in particular, though not exclusively, to ear plugs for workers in the food industry.

It is a particular problem that in many industries the continuous and loud noise of manufacturing equipment, and of packaging and conveying equipment, makes it necessary or advisable for ear plugs to be used, but that in the food processing industry the use of such safety devices presents a considerable danger of contamination to food if they fall into the foodstuffs being processed. This is because, although food processing production lines are invariably provided with detectors for detecting metallic foreign bodies, ear plugs are made of soft rubber or a synthetic plastics material and therefore cannot be detected by such safety systems.

It is known to provide a pair of ear plugs on the opposite ends of a length of cord so that if one ear plug becomes loose and falls from the ear of the person using it there is at least a good chance of it being retained on the end of the length of cord. It is also known to make the length of cord connecting the ear plugs at least partly of metal, and such a pair of connected ear plugs would clearly be capable of being detected by the detectors for detecting metallic foreign bodies used in food processing production lines. However, the difficulty remains that if one of the ear plugs becomes disconnected from the length of cord, it is able to pass such detectors without being detected since it is made of soft rubber or a synthetic plastics material.

The invention as claimed is intended to provide a remedy. It solves the problem of how to provide a pair of ear plugs for use by workers in food processing plants in a most convenient manner.

The advantages offered by the invention are, mainly, that it provides a pair of ear plugs which are most unlikely to become lost or misplaced but which if they do become misplaced can be detected by the detectors for detecting metallic foreign bodies which are invariably provided on food processing production lines.

One way of carrying out the invention is described in detail below with reference to drawings which illustrate, by way of example, one specific embodiment, in which:-

Figure 1 is a view of a pair of ear plugs embodying the invention.

Figure 2 is an exploded view showing one of the plugs detached from the length of cord which normally connects them, and

Figure 3 is a sectional view, drawn to a somewhat enlarged scale, through one of the plugs when connected to the length of cord.

Referring now to the drawings, in Figure 1 there is illustrated a pair of ear plugs 10,10 connected together by a length of cord 12. The plugs are of conventional shape and have been moulded in a soft rubber or synthetic plastics material.

In Figure 2 there is illustrated how the opposite ends of the length of cord have each been provided with a metal ferrule 14. As shown in Figure 3, the length of each ferrule is less than the depth of the hole in the plug in which it is to be forced. Consequently, the ferrule is contained wholly within the plug and the outer part of the hole in the resilient plug has been able to close slightly to retain the ferrule within the plug. The arrangement is such that it is very unlikely that the plug could ever become detached by inadvertence from the length of cord. The metal ferrule, which is constituted by a roll of metal strip, is tightly crimped on the end of the cord in the way in which metal ferrules have sometimes been crimped on the ends of boot and shoe laces. Consequently, it is very unlikely that the length of cord will ever become detached from the metal ferrule held captive within the ear plug.

It has been found that if the pair of ear plugs just described should be inadvertence become misplaced during use in a food processing plant, or indeed if they are introduced mischievously into the foodstuffs, the metallic part will be detected by the usual metal detectors which are invariably used in such plant.

Various modifications may be made. For example, in addition to each plug containing within it the metallic ferrule referred to, the length of connecting cord could have a fine metallic strand woven through it.

Claims

1. A pair of ear plugs (10,10) attached to the opposite ends of a length of cord (12) and each plug containing within it a metallic part whereby, if the plugs become misplaced during use in a food processing plant, they can be detected by metal detectors, characterised in that the metallic part within each ear plug is constituted by a metal ferrule (14) attached to the end of the length of cord (12) by means of which the pair of plugs are connected together, the arrangement being such that the metal ferrule (14) is a force fit in the hole in the plug in which it is fitted

2. A pair of ear plugs as claimed in claim 1, further characterised in that each metal ferrule (14) is constituted by a roll of metal strip and is tightly crimped on the end of the length of cord (12) so that it is very unlikely to become detached from said cord.

3. A pair of ear plugs as claimed in either one of the preceding claims, further characterised in that each metal ferrule (14) is of a length less than the depth of the hole in the plug (10) in which it is fitted, the arrangement being such that the ferrule (14) is contained wholly within the plug (10) and the outer part of the hole in the resilient plug has been able to close slightly to retain the ferrule (14) within the plug.

4. A pair of ear plugs as claimed in any one of the preceding claims, further characterised in that the length of cord (12) at the opposite ends of which the plugs (10,10) are attached has a fine metallic strand woven through it.